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Application No. 10/814,288
Docket No. P21-169534M/ISI

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AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows.

1. (Currently Amended) A piping connector comprising:

a socket in a tubular shape for attaching to an end of one pipe ; and

a plug in a tubular shape for attaching to an end of an other pipe, wherein,

the socket comprises a pair of notched grooves at opposite peripheral opposite sides ,

the notched grooves are mounted with a stopper comprising a U-shape,

the plug comprises a first taper portion, a flat portion and a second taper portion

extending respectively from a front end side and along an axial direction of the plug, and a

groove for fitting the stopper being formed at a ridge portion of the second taper portion, and

an inner periphery of the socket is arranged with a seal ring for sealing between the

inner periphery of the socket and an outer periphery of the plug in an airtight connection, and

wherein a first distance in the axial direction of the plug between a plug contacting

portion of the stopper and a plug contacting portion of the seal ring, is one of equal to and less

than a second distance in the axial direction of the plug between an initial stopper contacting

portion of the plug and an initial seal ring contacting portion on in a procedure of inserting the

plug into the socket, after the seal ring reaches a radius portion on the plug between the flat

portion and the first taper portion, the stopper is brought into contact with the second taper

portion.

2. (Currently Amended) The piping connector according to Claim 1, wherein

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before the seal ring passes the radius portion to ride on the flat portion, the stopper is brought into in contact with the second taper portion.

3. (Previously Presented) The piping connector according to Claim 1, wherein a radius of curvature R of the radius portion in a section of the plug along the axial direction comprises a range of 15 through 50mm.

4. (Previously Presented) The piping connector according to Claim 1, wherein an inner peripheral edge of the socket comprises:
a first stepped portion formed between a first diameter expanded portion and a second diameter expanded portion; and
a second stepped portion formed between the second diameter expanded portion and a third diameter expanded portion.

5. (Previously Presented) The piping connector according to Claim 1, wherein an inner peripheral edge of the socket comprises:
a stepped portion mounted with a hold ring, the hold ring having an L-shaped cross-section.

6. (Currently Amended) The piping connector according to Claim 4, wherein the inner peripheral edge of the socket comprises: a third second stepped portion being mounted with a hold ring, the hold ring having an L-shaped cross-section, and wherein the third stepped portion is formed between the first and second stepped portions.

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7. (Previously Presented) The piping connector according to Claim 5,
wherein the seal ring is mounted and held at a predetermined position between the hold ring
and a second stepped portion on the inner peripheral edge of the socket.

8. (Currently Amended) The piping connector according to Claim 6, wherein the
seal ring is mounted and held at a predetermined position between the hold ring and [[a]] the
first stepped portion on the inner peripheral edge of the socket.

9. (Previously Presented) The piping connector according to Claim 7,
wherein the hold ring is mounted to the inner periphery of the socket by permanent
attachment means.

10. (Previously Presented) The piping connector according to Claim 8,
wherein the hold ring is mounted to the inner periphery of the socket by permanent
attachment means.

11. (Previously Presented) The piping connector according to Claim 1,
wherein an upper half portion of the notched grooves at an outer peripheral edge of the socket
comprises a pair of opposing ribs projecting from edge portions of the notched grooves, and
wherein the pair of opposing ribs retains the stopper.

12. (Previously Presented) The piping connector according to Claim 4,

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wherein an upper half portion of the notched grooves at an outer peripheral edge of the third diameter expanded portion comprises a pair of opposing ribs projecting from edge portions of the notched grooves, and

wherein the pair of opposing ribs retains the stopper.

13. (Currently Amended) The piping connector according to Claim 1, wherein a middle portion of the pair of notched grooves at an outer peripheral edge of the socket comprises a recess portion along a peripheral direction.

14. (Currently Amended) The piping connector according to Claim 4, wherein a middle portion of the pair of notched grooves at an outer peripheral edge of the third diameter expanded portion comprises a recess portion along a peripheral direction.

15. (Currently Amended) The piping connector according to Claim 1, wherein a lower end of the pair of notched grooves at an outer peripheral edge of the socket comprises a channel-shaped recess portion for containing an end portion of the stopper.

16. (Currently Amended) The piping connector according to Claim 4, wherein a lower end of the pair of notched grooves at an outer peripheral edge of the third diameter expanded portion comprises a channel-shaped recess portion for containing an end portion of the stopper.

17. (Previously Presented) The piping connector according to Claim 1,

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wherein the stopper further comprises:

a forward bent portion at a base portion of the stopper; and
an arc-shaped inwardly bent portion proximate to the base portion of the stopper
formed on an inner side of the stopper.

18. (Previously Presented) A method of connecting a piping connector, said piping connector comprising a socket containing a seal ring fixably attached to an inner periphery of said socket, a stopper, and a plug comprising a first tapered portion, a radius portion, a flat portion, a second tapered portion and a notch portion for engaging said stopper, all of said plug portions extending respectively from a front end of said plug, the method of connecting comprising:

inserting said plug into said stopper;
engaging said first tapered portion of said plug with said seal ring attached to said socket; and

sliding said plug into said stopper such that after said seal ring reaches the radius portion of said plug, the stopper is brought into engaging contact with the second taper portion.

19. (Currently Amended) The method of connecting a piping connector according to Claim 18, further comprising:

sliding said plug into said stopper such that before said seal ring passes the radius portion, the stopper is brought into in engaging contact with the second taper portion.

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20. (Currently Amended) A piping connector comprising:
socket means for attaching to an end of one pipe, said socket means comprising:
groove means at opposite peripheral opposite sides of said socket means for
retaining stopper means mounted in said groove means, said stopper means for
providing a locking connection relative to said socket means; and
seal ring means fixably mounted on an inner periphery of said socket for
providing airtight sealing; and
plug means for attaching to an end of an other pipe, said plug means
comprising:
a first taper portion;
a radius portion;
a flat portion;
a second taper portion; and
groove portion for engaging said stopper means;
wherein all said portions extend respectively from a front end side and along
an axial direction of said plug means, and
wherein a first distance in the axial direction of the plug means between a plug
means contacting portion of the stopper means and a plug means contacting portion of
the seal ring means, is one of equal to and less than a second distance in the axial
direction of the plug means between an initial stopper means contacting portion on
wherein said plug means is insertable into said socket means such that after said seal
ring means reaches said radius portion from between said first taper portion and
before said seal ring means reaches said flat portion, said stopper means is brought

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~~into engaging contact with said second taper portion.~~